

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of controllably inducing nucleation of a first solute dissolved in a solution comprising
 - (a) providing a ~~primary vessel for droplet~~ containing said solution;
 - (b) applying an induction potential to said ~~primary vessel droplet~~ using an induction electrode such that said solution acquires a net charge; and
 - (c) levitating said droplet in an electrodynamic balance,wherein said method lowers the mass to charge ratio of said droplet thereby controllably causing ion-induced nucleation of at least some of said first solute in a condensed phase.
2. (currently amended) The method as defined in claim 1, wherein said ~~step of~~ causing ion-induced nucleation comprises maintaining the surface charge density of said ~~primary vessel droplet~~ above a threshold value necessary to induce the onset of nucleation.
3. (currently amended) The method as defined in claim 1, wherein causing ion-induced nucleation comprises adjusting the surface charge density of said ~~primary vessel droplet.~~
4. (currently amended) The method as defined in claim 1, wherein ions in said ~~vessel droplet~~ in excess of any counterions induce heterogeneous nucleation of said solute.
5. (cancelled)
6. (cancelled)
7. (cancelled)
8. (cancelled)
9. (original) The method as defined in claim 1, wherein said ion-induced nucleation causes formation of one or more nuclei and wherein said method further comprises

delivering said nuclei to a target location.

- 10.(original) The method as defined in claim 9, wherein said target location is a substrate.
- 11.(currently amended)The method as defined in claim 10, wherein said ~~primary vessel~~ is a droplet levitated in a levitation device and wherein said target location is located at a position remote from said electrodynamic balance levitation device.
- 12 (original) The method as defined in claim 10, wherein at least a portion of said solution comprising said nuclei is deposited on said substrate.
- 13.(currently amended)The method as defined in claim 9, wherein at least some of said nuclei are delivered from said ~~primary vessel~~ droplet to a secondary vessel.
- 14.(original) The method as defined in claim 13, wherein said at least some of said nuclei seed crystal growth in said secondary vessel.
- 15.(currently amended)The method as defined in claim 1, wherein said solution initially comprises at least one volatile solvent, and wherein said solvent evaporates from said ~~vessel~~ droplet causing an increase in concentration of said first solute.
- 16.(currently amended)The method as defined in claim 1, ~~herein~~ wherein volatile solvents in said solution are allowed to evaporate to yield a residue comprising said one or more nuclei.
- 17.(currently amended)The method as defined in claim 4, wherein said ions causing said heterogeneous nucleation are located in an outer layer of said ~~vessel~~ droplet.
- 18.(original) The method as defined in claim ~~6~~ 1 , wherein said solution comprises a surface tension modifier to inhibit Coulomb explosion of said droplet.
- 19.(original) The method as defined in claim 9, wherein at least some of said nuclei are used to promote crystallization of said first solute.
- 20.(original) The method as defined in claim 1, wherein said first solute is a solid.
- 21.(original) The method as defined in claim 1, wherein said first solute is selected from the group consisting of inorganic compounds and organic compounds.
- 22.(cancelled)
- 23.(currently amended)The method as defined in claim ~~22~~ 21, wherein said first solute is a biomolecule.
- 24.(original) The method as defined in claim 23, wherein said biomolecule is a protein.

- 25.(currently amended)The method as defined in claim ~~22~~ 21, wherein said first solute is an organic acid.
- 26.(currently amended)The method as defined in claim ~~22~~ 21, wherein said organic compound is selected from the group consisting of CHCA and THAP.
- 27.(original) The method as defined in claim 1, wherein a second solute is dissolved in said solution in addition to said first solute.
- 28.(original) The method as defined in claim 26, wherein said first solute and said second solute are selected from the group consisting of organic compounds and inorganic compounds.
- 29.(original) The method as defined in claim 27, comprising selectively precipitating at least one said first and second solutes.
- 30.(currently amended)The method as defined in claim 29, comprising separating one of said first and second solutes from the other of said first and second solutes by selectively causing crystallization of one of said solutes.
- 31.(original) The method as defined in claim 28, wherein said first and second solutes are stereoisomers.
- 32.(original) The method as defined in claim 28, wherein said first and second solutes are enantiomers.
- 33.(original) The method as defined in claim 28, wherein said method results in co-crystallization of said first and second solutes.
- 34.(original) The method as defined in claim 33, wherein said second solute is a MALDI matrix.
- 35.(currently amended)The method as defined in claim 1, wherein said method is adapted for selectively separating polymorphic forms of said first solute.
- 36.(cancelled)
- 37.(cancelled)
- 38.(original) The method as defined in claim 27, wherein said method causes differential precipitation of said first and second solutes.
- 39.(original) The method as defined in claim 1, further comprising adding a solid to said solution to further induce nucleation of said first solute.
- 40.(currently amended)The method as defined in claim 1, comprising optimizing the ionic make-up of said solution to promote nucleation of said solute prior to applying

said induction potential.

- 41.(withdrawn) A precipate or co-precipitate produced the method of claim 1.
- 42.(currently amended)A method of controllably inducing precipitation of selected solutes dissolved in a solution comprising
- (a) providing a ~~primary-vessel for~~ droplet containing said solution;
 - (b) applying an induction potential to said ~~primary-vessel~~ droplet using an induction electrode such that said solution acquires a net charge; and
 - (c) levitating said droplet in an electrodynamic balance,
wherein said method reduces the mass to charge ratio of said droplet thereby
selectively causing ion-induced precipitation of at least one of said solutes in a condensed phase.
- 43.(cancelled)
- 44.(currently amended)The method as defined in claim 42, wherein said ~~step of~~ selectively causing ion-induced precipitation comprises increasing the surface charge density of said ~~vessel droplet~~.
- 45.(original) The method as defined in claim 44, wherein ~~said primary-vessel is a droplet and~~ said surface charge density is increased at an outer air-droplet interface thereof.
- 46.(currently amended)A method of controllably inducing crystallization of at least one solute dissolved in a solution, said method comprising
- (a) providing a ~~primary-vessel~~ droplet comprising said solution;
 - (b) levitating said droplet in an electrodynamic balance;
 - ~~(b)~~ (c) controllably imparting a net charge on said solution in a condensed phase to selectively cause ion-induced nucleation of said at least one solute; and
 - (c) depositing crystals derived from said nucleation on a substrate separate from said electrodynamic balance.
- 47.(original) The method as defined in claim 46, wherein said crystals are deposited on said substrate at a predetermined target location.
- 48.(original) The method as defined in claim 46, further comprising identifying the structure of said crystals on said substrate.
- 49.(original) The method as defined in claim 46, further comprising producing said solute on said substrate in a purified solid form.

- 50.(currently amended)The method as defined in claim 46 48, wherein said depositing and said identifying are automated.
- 51.(original) The method as defined in claim 46, wherein said solution comprises a mixture of solutes dissolved in said solution and wherein steps (a) - (c) are performed in respect of each of a plurality of said solutes to thereby selectively separate and characterize said solutes.
- 52.(original) The method as defined in claim 51, wherein said solutes comprise biomolecules.
- 53.(original) The method as defined in claim 51, wherein said solutes comprise stereoisomers.
- 54.(original) The method as defined in claim 51, wherein said solutes comprise a mixture of organic and inorganic compounds.
- 55.(cancelled)
- 56.(original) The method as defined in claim 51, wherein at least one of said solutes is a MALDI matrix.
- 57.(original) The method as defined in claim 51, wherein as least one of said solutes is a polymorph.~~4-~~
- 58.(new) A method of controllably inducing nucleation of a solute dissolved in a solution comprising
- (a) providing a droplet containing said solution;
 - (b) applying an induction potential to said droplet using an induction electrode such that said solution acquires a net charge;
 - (c) levitating said droplet in a levitation device, and
 - (d) delivering a residue of said droplet to a target location remote from said levitation device by adjustment of the electric field of said levitation device, wherein said method lowers the mass to charge ratio of said droplet thereby controllably causing ion-induced nucleation of at least some of said solute in a condensed phase.